SYSTEM AUDIT REPORT NUMBER 03/35812/SP-02/S11	NQA NATIONAL QUALITY ASSURANCE, USA

THIS REPORT RELATES TO A/AN SURVEILLANCE/UPGRADE VISIT ON JUNE 17-18, 03

Company: Marshall Spce Flight Center	**Other Sites Visited:** 1. N/A
Address: M S F C Alabama 35812	2. N/A

Scope:

ISO 9001:2000: All Products and Services Provided by the Marshall Space Flight Center. MSFC Supports the NASA Agency Infrastructure and is a Major Contributor to All Its Scientific and Technical Enterprises.
AS9100: Design, Development, Production, Installation and Servicing of Flight Hardware, Flight Software, and associated Ground Support Equipment Interfacing with Flight Hardware and Fight Software.

Standard(s): AS 9100 A	**Support Documentation(s):** AS9101A	**Non-English Languages Used:** N/A

Comments/Concerns of the Assessment Team:

No Noncompliances noted. Recommend registration to AS 9100 at this time.
Observation noted should be responded to within 20 working days. Certificate processing can begin immediately.
Previously identified noncompliances have been satisfactorily addressed.

The visit is deemed to be:	**Corrective Action Plan (CAP) Instructions:**
☒ **Satisfactory** ☐ **Unsatisfactory** *Unsatisfactory visits may result in a change to the next audit activity.*	☒ Return CAP in 20 working days (all NCs, Obs & OIs). Certificate processing initiates after receipt/acceptance of CAPs. ☐ AS & QS-9000 NCs must be closed prior to certificate issuance. ☐ Return CAP in ten days for Major NCs issued during surveillance.

NQA ASSESSMENT TEAM		**COMPANY INFORMATION**
LEAD AUDITOR: Richard Giguere		MGT. REP.: Axel Roth
TEAM: Bill Hartman	TEAM:	QUALITY MANUAL (REV & ISSUE DATE):
TEAM:	TEAM:	Rev K May 9, 2003

NQA, USA Representative Signature and Date:	Company Representative Signature and Date:	
Richard Giguere 6/18/03	Axel Roth 6/18/03	

SYSTEM AUDIT REPORT NUMBER: 03/35812/SP02/S11

NQA National Quality Assurance-USA

AUDIT MATRIX

X or √ indicates reference point for assessment. X or √ through entire box as applicable to indicate actual function/process audited against the ISO 9001:2000 requirement. X or √ in next visit block indicates planned section for next activity. Estimated duration is 45 minutes.

Note: Asterisk (*) indicates requirement to be reviewed at each activity.

ISO 9001:2000 Reference	Clause Title	MGMGT REP	DESIGN	TEST	INSPECTION	S & MA	CONFIG MGMT	TRAFFIC CTRL	PROCUREMENT	HEI	DATA SYSTEMS	ECLSS	BIC	CALIBRATION	HOSC		NEXT VISIT PLAN
		SPECIFIC ISO 9001:2000 REQUIREMENTS FUNCTIONS/PROCESSES AUDITED DURING THIS VISIT															
4.2.1 & 4.2.2*	Quality Manual *					X											X
4.2.3	Document Control		X			X					X						
4.2.4	Quality Records	X	X	X	X	X	X	X	X	X		X					
4.1, 5.1, 5.2, 5.3, 5.4.2, 5.5	Management Activities																X
5.4.1*	Quality Objectives*	X				X											X
5.6*	Management Review *	X				X											X
6.1 & 6.2	Resources & Competence																X
6.3 & 6.4	Infrastructure & Work Environment																X
7.1	Product Realization Planning												X				
7.2	Customer Related Process & Comm.			X									X				
7.3	Design & Development		X														
7.4	Purchasing								X								
7.5.1 & 7.5.3	Process Provision and ID&T Activities			X													
7.5.2	Process Validation			X													
7.5.4	Customer Property			X									X				
7.5.5	Preservation (Handling, Storage & Deliv.)			X				X									
7.6	Calibration			X													
8.1	Measurement & Monitoring Planning																
8.2.1*	Customer Satisfaction*	X				X											X
8.2.2*	Internal Audits*					X											X
8.2.3	Measurement &Monitoring of Process														X		
8.2.4	Measurement & Monitoring of Product				X												
8.3	Non-Conforming Processes/Products				X												
8.4	Analysis of Data																X
8.5.1*	Continuous Improvement*	X															X
8.5.2 & 8.5.3*	Corrective/Preventive Action*	X								X		X					X
	Use of NQA Logo					X											X

Note: Please fill in the table including areas/sites/departments/functions visited during the visit.

SYSTEM AUDIT REPORT NUMBER 03/35812/SP02/S11	
SYSTEM AUDIT RECORD	
Auditor(s): Rick Giguere Bill Hartman	**Date:** June 17-18, 2003

Clause No.	Record of Details of Audit (names, referenced documents, depts.., etc.)	NC	Obs or OIs
ALL	*See AS 9101 A checklist* INTERVIEWED: DOCUMENTS REVIEWED: OBJECTIVE EVIDENCE SAMPLED:		1
	INTERVIEWED: DOCUMENTS REVIEWED: OBJECTIVE EVIDENCE SAMPLED:		
	INTERVIEWED: DOCUMENTS REVIEWED: OBJECTIVE EVIDENCE SAMPLED:		
	INTERVIEWED: DOCUMENTS REVIEWED: OBJECTIVE EVIDENCE SAMPLED:		

TOTAL		1

SYSTEM AUDIT REPORT NUMBER 03/35812/SP02/S-11

NQA
National Quality Assurance-USA

Ref No.	Clause No.	NON-CONFORMANCES & OBSERVATIONS/OPPORTUNITIES FOR IMPROVEMENT RAISED	NC/OBS/ OI
1	5.6	A review of management review meeting minutes reveals a weakness in the level of discussion on performance against objectives.	OBS

NQA, USA Representative Signature and Date: Richard Hay 6/18/03

Company Representative Signature and Date: Cyril Roth 6/18/03

SAE The Engineering Society For Advancing Mobility Land Sea Air and Space®
INTERNATIONAL
400 Commonwealth Drive, Warrendale, PA 15096-0001

AEROSPACE STANDARD

SAE AS9101
Technically equivalent to AECMA prEN 9101

REV. A

Issued 2000-09
Revised 2002-04

Superseding AS9101

Quality System Assessment

TO PLACE A DOCUMENT ORDER: (724) 776-4970 FAX: (724) 776-0790 SAE WEB ADDRESS: http://www.sae.org

SECTION 1
Associated to the AS9100/EN9100/JISQ9100
Section 1 based on ISO 9001-2000

1. SCOPE:

The purpose of this document is to define the content and the presentation of the Assessment Report of the section 1 of the AS/EN/JISQ 9100, based on ISO 9001-2000.

2. QUALITY SYSTEM ASSESSMENT REPORT CONTENT:

The Assessment Report is made up of:

- Page 3 (required)
  General Assessment Information
- Page 4 (required)
  Assessment Conclusions
- Page 5 (optional)
  General Organizational Information
- Page 6 (optional if Quality Scoring Appendix 2 is used)
  Assessment Result Summary
- Page 7
  Corrective Action Request (when required)
- Page 8
  List of Recommendations/Observations/Comments
- Appendix 1
  Quality System Questionnaire relative to the section 1 of the AS/EN/JISQ 9100
- Appendix 2
  Quality System Scoring (Optional)
- Appendix 3
  Documents regarding the company:

  - Organization charts
  - Copies of agreements and certifications

ASSESSMENT REPORT	*Assessing company logo*

GENERAL ASSESSMENT INFORMATION

1. Organization & Work Address

Company Name: NASA - MSFC	Tel Number: 256-544-0451
Subsidiary of :	Fax Number : 256-544-7920
Organization Identification :	e-mail : axel.roth@nasa.gov
Assessed Site Address :	CAGE code :
Marshall Space Flight Center MSFC, AL 35812	Assessment Representative & Title : Rick Giugere - Auditor, Lead
Main activities : Program Management	Quality Manager Representative & Title : Axel Roth, Management Representative
Product Types or Codes :	

2. ISO Registration

[X] ISO Registered	Registrar Name : NQA-USA
[ ] ISO Standard / Revision	Expiration Date (If applicable) : May 27, 2004
[ ] Aerospace Standard / Revision	

3. Assessment Team

Lead Assessor Name : [X] Certified Auditor – Type & No. AEA A03158 [ ] Qualified Auditor	Other Assessor Team Members : Bill Hartman

4. Assessment Dates : June 17-18, 2003

5. Assessment Scope

[ ] Total facility assessed [ ] Initial assessment	[X] All 9100 elements assessed
[ ] Partial facility assessed [ ] Re-assessment	[ ] Partial 9100 elements assessed
[X] Other: AS9100 Upgrade	Elements not assessed :
[ ] Activity assessed :	

6. Assessment Disposition

[X] Conforming
[ ] Conforming with minor (mi) corrective action
[ ] Non conforming with Major (MA) corrective action

7. Scoring

Scoring result : N/A

8. Assessment Approval

Assessing Company	Date	Lead Assessor Name	Signature
NQA-USA	6/18/03	Rick Giugere	Richard Giugere

Distribution Agreement

This Assessment Report is the property of the assessed Organization and the assessing Company. Distribution to other companies or individuals is authorized only after written agreement of the assessed Organization and of the assessing Company.

To that end, a signature below by an Authorized Representative of the assessing company indicates that this report may be copied by the organization for other customers.
If copied, the report must be disclosed in full including findings and any corrective actions.

Authorized Representative Assessing Company Name: Rick Giugere Signature: Richard Giugere Date: 6/18/03

ASSESSMENT REPORT	*Assessing company logo*

ASSESSMENT CONCLUSIONS
(To be completed in English)

General comments about the organization and the quality system of the assessed organization:

Good overall awareness of quality system requirements at all levels.

Strong points :

Risk management process as related to use in projects.
Internal audits based on processes rather than procedures.
Automated system used for design process document control.

Improvement Opportunities :

Better documentation of quality objective discussions during management review.

ASSESSMENT REPORT	*Assessing company logo*

GENERAL ORGANIZATION INFORMATION

1. Legal and Financial Aspects

- Date of Formation :
- Legal Status :
- Capital :
- Other Data :

	Third Prior Financial Year ( )	Second Prior Financial Year ( )	First Prior Financial Year ( )	Current Financial Year ( )
Sales				
Earnings				
Earnings used for Re-Investment				
Workforce				

2. Turnover breakdown and main Customers

Activities	Main Customers	Sales Percentage
Aircraft, Space and Defense Industry		
Other Activity (be specific)		

3. Clearances or Approvals granted by Authorities

Name of the Authority	Types and References	End of Validity (date)

ASSESSMENT REPORT	*Assessing company logo*

ASSESSMENT RESULT SUMMARY

Organization:

Elements* (AS / EN / JISQ9100 Standard)	Result S	MA	mi	N/A	Observation / Corrective Action Request Number (MA/mi)
4- Quality Management System					
4.1 General requirements	S				
4.2 Documentation requirements	S				
4.3 Configuration Management	S				
5 - Management responsibility					
5.1 Management commitment	S				
5.2 Customer focus	S				
5.3 Quality policy	S				
5.4 Planning	S				
5.5 Responsibility, authority and communication	S				
5.6 Management review	S				1 Observation
6 - Resource management					
6.1 Provision of resources	S				
6.2 Human resources	S				
6.3 Infrastructure	S				
6.4 Work environment	S				
7 - Product realization					
7.1 Planning of product realization	S				
7.2 Customer-related processes	S				
7.3 Design and development	S				
7.4 Purchasing	S				
7.5 Production and service provision	S				
7.6 Control of monitoring and measuring devices	S				
8 - Measurement, analysis and improvement					
8.1 General	S				
8.2 Monitoring and measurement	S				
8.3 Control of nonconforming product	S				
8.4 Analysis of data	S				
8.5 Improvement	S				
Assessed Organization : NASA - MSFC					Assessing Company : NQA-USA
Rep's name : Axel Roth	Results S				Lead Assessor Name : Rich Giugere
Signature : Axel Roth					Signature : Rich Giugere

*For each element, cross results of assessment : "S" for Satisfactory, "MA" for major corrective action, "mi" for minor or "N/A" for non applicable

CORRECTIVE ACTION REQUEST (C.A.R.)	*Assessing company logo*

Organization:	Identification C.A.R. No.:
Site:	Date issued:
Reference Standard :	Referenced Standard Element concerned :

Criticality MA / mi	Non-Conformance Description

Assessor Name :	Assessor Signature :

Assessed Organization to complete the Corrective Action Request with root cause analysis, corrective action and planned completion date of corrective action, and return to the assessing Company by due date.	Due date :

Action No.:	Root Cause :

Action No. :	Corrective Action :	Planned completion date of Corrective Action :

Organization Representative Name :	Signature :	Current date :

Verification of the implementation of the completed Corrective Action by the Assessed Organization

Organization Representative Name :	Signature :	Current date :

Verification of the implementation of the completed Corrective Action to be filled out by the Assessing Company

Verification date :	Accepted : Yes ☐ No ☐	Assessor Name :	Assessor Signature :

List of Recommendations/Observations/Comments	Assessing company logo

Organization :	Audit report number :
Site :	Issued date :

Item Number	Section	Description

Lead Assessor Name :	Signature :

S : Satisfactory - CAR : Corrective action required – MA : Major corrective action – mI : Minor corrective action
N/A : Not applicable - N/E: Not evaluated - P : Product - M : Management

APPENDIX 1
9101
QUALITY SYSTEM QUESTIONNAIRE

Associated to the International Quality System Standard
AS9100/JISQ9100/EN9100 Section 1, based on ISO 9001-2000

SAE AS9101 Revision A

1. SCOPE:

The purpose of this document is to present the questionnaire to be used during the "on site" quality system assessment of Organizations in order to ensure common practices for these assessments. This questionnaire is relative to the section 1 of the AS/EN/JISQ 9100 based on ISO 9001-2000.

2. USE OF THE QUESTIONNAIRE:

The use of this questionnaire is mandatory and will be a part of the Assessment Report.

The questionnaire is based on the AS/EN/JISQ 9100 standard, section 1, which is relative to:

- ISO 9001:2000 requirements
- Additional Aerospace specific requirements are shown in bold and italics

When a reference (e.g. 4.1) is added to a question, it is linked to the appropriate chapter (e.g. 4.1) of AS/EN/JISQ 9100.

Important questionnaire elements are defined below:

- Key requirements
  The questions which are marked by:
  - "P" have a direct link with the products
  - "M" have a direct link with the management

- Mark the appropriate box for each requirement with:
  - Satisfactory (S)
  - Not applicable (N/A)
  - Not evaluated (N/E)

- Corrective Action Request (CAR) are categorized Major (MA) or Minor (mi.):
  Major: The absence of, or total breakdown of a management element specified in the 9100 standard or any non-conformities where the effect is judged to be detrimental to the integrity of the product or service which are identified as Key Requirements in significant sections of AS/EN/JISQ 9100 ("P" or "M") in the questionnaire.
  Minor: Other deviation.

  Note: A number of minor non-conformities against one requirement can represent a total breakdown of the system and this can be considered as a major non-conformity.

  The CAR number shall be referenced in the column "CAR number".
  The category MA for Major CAR or mi for Minor CAR shall be included in this column.

- Objective evidence assessed/Observations/Comments
  Record the objective evidence reviewed during the assessment. Guidance is provided for certain questions, as indicated in the Key Requirements column by a small number (for example: 1).

QUALITY SYSTEM QUESTIONNAIRE					
ASSESSMENT QUESTIONS	KEY Requirements	S	CAR Number Ma or mi	N/A	N/E
4 Quality management system					
4.1. General requirements					
Has the organization established, documented, implemented and maintained a quality management system and continually improve its effectiveness in accordance with the requirements of this International Standard?		✓			
Does the organization : identify the processes needed for the quality management system and their application throughout the organization ? determine the sequence and interaction of these processes? determine criteria and methods needed to ensure that both the operation and control of these processes are effective? ensure the availability of resources and information necessary to support the operation and monitoring of these processes? monitor, measure and analyze these processes? and implement actions necessary to achieve planned results and continual improvement of these processes?	1) 1)	✓ ✓ ✓ ✓			
Are these processes managed by the organization in accordance with the requirements of this International Standard?		✓			
Where an organization chooses to outsource any process that affects product conformity with requirements, does the organization ensure control over such processes?		✓			
Is the control of such outsource processes identified within the quality management system?		✓			

Note: Processes needed for the quality management system referred to above should include processes for management, provision, product realization and measurement.

4.2. Documentation requirements

4.2.1 General

06 Does the quality management system documentation include : a) documented statements of a quality policy and quality objectives? b) a quality manual? c) documented procedures required by this International Standard? d) documents needed by the organization to ensure the effective planning, operation and control of its processes? e) records required by this International Standard (see 4.2.4)? and ***f) quality system requirements imposed by the applicable Regulatory Authorities?***		S			
07 Does the organization ensure that personnel have access to quality management system documentation and are aware of relevant procedures?		S			
08 Do Customer and/or regulatory authority representatives have access to quality management system documentation?		S			

1) Main process formally identified (list, flow diagram, etc.)

Objective evidence assessed / Observations / Comments

(07) Access via the MIDL, (Marshall Integrated Document Library).

S : Satisfactory - CAR : Corrective action required – MA : Major corrective action – mi : Minor corrective action
N /A : Not applicable - N/E: Not evaluated - P : Product - M : Management

MPD
1280.1
K

QUALITY SYSTEM QUESTIONNAIRE ASSESSMENT QUESTIONS	KEY Requirements	S	CAR Number Ma or mi	N/A	N/E
4.2.2 Quality manual					
09 Has the organization established and maintained a quality manual that includes : a) the scope of the quality management system, including details of, and justification for, any exclusions ? b) the documented procedures established for the quality management system, or reference to them, and ***when referencing the documented procedures, is the relationship between the requirements of this International Standard and the documented procedures clearly shown?*** c) a description of the interaction between the processes of the quality management system?	1) 2) 3)	✓ ✓ ✓ ✓			
Note 1: Where the term "documented procedure" appears within this International Standard, this means that the procedure is established, documented, implemented and maintained. Note 2: The extent of the quality management system documentation can differ from one organization to another due to a) the size of organization and type of activities, b) the complexity of processes and their interactions, and c) the competence of personnel					
4.2.3 Control of documents					
10 Are the documents required by the quality management system controlled?		S			
11 Are records controlled according to the requirements given in 4.2.4?		S			
12 Has a documented procedure been established to define the controls needed to: a) approve documents for adequacy prior to issue? b) review and update as necessary and re-approve documents? c) ensure that changes and the current revision status of documents are identified? d) ensure that relevant versions of applicable documents are available at points of use? e) ensure that documents remain legible and readily identifiable? f) ensure that documents of external origin are identified and their distribution controlled? and g) prevent the unintended use of obsolete documents, and to apply suitable identification to them if they are retained for any purpose?		S			
13 Does the organization coordinate document changes with customers and/or regulatory authorities in accordance with contract or regulatory requirements?		S			

1) Quality manual reference and issue
2) Check the procedure list
3) International standard used as referential

Objective evidence assessed / Observations / Comments

Program / Project Data System - MWI 7120.3 Rev B
2 GMV - COBRA-PLAN-003 8/30/02 Appr. ✓

S : Satisfactory - CAR : Corrective action required – MA : Major corrective action – mi : Minor corrective action
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QUALITY SYSTEM QUESTIONNAIRE					
ASSESSMENT QUESTIONS	KEY Requirements	S	CAR Number Ma or mi	N/A	N/E
4.2. Documentation requirements (continued)					
4.2.4 Control of records					
14 Are records established and maintained to provide evidence of conformity to requirements and of the effective operation of the quality management system?		S			
15 Do records remain legible, readily identifiable and retrievable?	1)	S			
16 Has a documented procedure been established to define the controls needed for the identification, storage, protection, retrieval, retention time and disposition of records?		S			
17 Does the documented procedure define the method for controlling records that are created by and/or retained by suppliers? MPG 1440.2 (J)		S			
18 Are records available for review by customers and regulatory authorities in accordance with contract or regulatory requirements? MPG 1280.1 (K)		S			
4.3 Configuration management					
19 Has the organization established, documented and maintained a configuration management process appropriate to the product ?	P				

1) Records examples

Objective evidence assessed / Observations / Comments

(17) specified per MPG-1440.2 - noted per contract. Sample NTS 8-00016

S : Satisfactory - CAR : Corrective action required – MA : Major corrective action – mi : Minor corrective action
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QUALITY SYSTEM QUESTIONNAIRE					
ASSESSMENT QUESTIONS	KEY Requirements	S	CAR Number Ma or mi	N/A	N/E

5 Management responsibility

5.1. Management commitment

01 Has Top management provided evidence of its commitment to the development and implementation of the quality management system and continually improving its effectiveness by : a) communicating to the organization the importance of meeting customer as well as statutory and regulatory requirements? b) establishing the quality policy? c) ensuring that quality objectives are established? d) conducting management reviews? and e) ensuring the availability of resources?	1) M				✓

5.2. Customer focus

02 Has Top management ensured that customer requirements are determined and are met with the aim of enhancing customer satisfaction (see 7.2.1 and 8.2.1)?					✓

5.3. Quality policy

03 Has Top management ensured that the quality policy : a) is appropriate to the purpose of the organization? b) includes a commitment to comply with requirements and continually improve the effectiveness of the quality management system? c) provides a framework for establishing and reviewing quality objectives? d) is communicated and understood within the organization? and e) is reviewed for continuing suitability?	2)				✓

5.4. Planning

5.4.1. Quality objectives

04 Has Top management ensured that quality objectives, including those needed to meet requirements for product [see 7.1 a)], are established at relevant functions and levels within the organization.	3)	S			
05 Are the quality objectives measurable and consistent with the quality policy.	M	S			

5.4.2. Quality management system planning

06 Has Top management ensured that : a) the planning of the quality management system is carried out in order to meet the requirements (see 4.1), as well as the quality objectives? and b) the integrity of the quality management system is maintained when changes to the quality management system are planned and implemented?					✓

1) Evidence of management commitment
2) Identify and records method of communication
3) Yearly objectives (current and previous year) and status of their implementation

Objective evidence assessed / Observations / Comments

discussion noted at Mgmt Rev.

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QUALITY SYSTEM QUESTIONNAIRE					
ASSESSMENT QUESTIONS	KEY Requirements	S	CAR Number Ma or mi	N/A	N/E

4.2. Documentation requirements (continued)

4.2.4 Control of records

14 Are records established and maintained to provide evidence of conformity to requirements and of the effective operation of the quality management system?		S			
15 Do records remain legible, readily identifiable and retrievable?	1)	S			
16 Has a documented procedure been established to define the controls needed for the identification, storage, protection, retrieval, retention time and disposition of records? MPG 1410.1 + 1410.2		S			
17 *Does the documented procedure define the method for controlling records that are created by and/or retained by suppliers?*		S			
18 *Are records available for review by customers and regulatory authorities in accordance with contract or regulatory requirements?*		S			

4.3 Configuration management

19 *Has the organization established, documented and maintained a configuration management process appropriate to the product ?*	P	S			

1) Records examples

Objective evidence assessed / Observations / Comments

Conf + Data Managmt Group Leader -
service to programs + projects. - support management at project,
ED43-001 - Conf. + Data Mgmt Group -
ED43-025 - Program/Project Doc + Data Mgt Support

Maintain CCBD - doc. retained
CPTAS - Change Processing Tracking + Accounting System
ICMS on-line
Drawing numbers - Part numbers - assigned + maintained
Document Package Routing Slip - control of documents.
Responsible for checking orig. docs for format per MSFC-STD-555
96M25110-001 PCN# MP00042, MP00043
↳ DRRS # 7852F

S : Satisfactory - CAR : Corrective action required – MA : Major corrective action – mi : Minor corrective action
N /A : Not applicable - N/E: Not evaluated - P : Product - M : Management

QUALITY SYSTEM QUESTIONNAIRE					
ASSESSMENT QUESTIONS	KEY Requirements	S	CAR Number Ma or mi	N/A	N/E

5 Management responsibility

5.1. Management commitment

01	Has Top management provided evidence of its commitment to the development and implementation of the quality management system and continually improving its effectiveness by : a) communicating to the organization the importance of meeting customer as well as statutory and regulatory requirements? b) establishing the quality policy? c) ensuring that quality objectives are established? d) conducting management reviews? and e) ensuring the availability of resources?	1) M				

5.2. Customer focus

02	Has Top management ensured that customer requirements are determined and are met with the aim of enhancing customer satisfaction (see 7.2.1 and 8.2.1)?					

5.3. Quality policy

03	Has Top management ensured that the quality policy : a) is appropriate to the purpose of the organization? b) includes a commitment to comply with requirements and continually improve the effectiveness of the quality management system? c) provides a framework for establishing and reviewing quality objectives? d) is communicated and understood within the organization? and e) is reviewed for continuing suitability?	2)				

5.4. Planning

5.4.1. Quality objectives

04	Has Top management ensured that quality objectives, including those needed to meet requirements for product [see 7.1 a)], are established at relevant functions and levels within the organization.	3)				
05	Are the quality objectives measurable and consistent with the quality policy.	M				

5.4.2. Quality management system planning

06	Has Top management ensured that : a) the planning of the quality management system is carried out in order to meet the requirements (see 4.1), as well as the quality objectives? and b) the integrity of the quality management system is maintained when changes to the quality management system are planned and implemented?					

1) Evidence of management commitment
2) Identify and records method of communication
3) Yearly objectives (current and previous year) and status of their implementation

Objective evidence assessed / Observations / Comments

S : Satisfactory - CAR : Corrective action required – MA : Major corrective action – mi : Minor corrective action
N/A : Not applicable - N/E: Not evaluated - P : Product - M : Management

QUALITY SYSTEM QUESTIONNAIRE					
ASSESSMENT QUESTIONS	KEY Requirements	S	CAR Number Ma or mi	N/A	N/E
5.5. Responsibility, authority and communication					
5.5.1. Responsibility and authority					
07 Has Top management ensured that the responsibilities and authorities are defined and communicated within the organization?	1)				✓
5.5.2. Management representative Axel Roth					
08 Has Top management appointed a member of management who, irrespective of other responsibilities, has responsibility and authority that includes : a) ensuring that processes needed for the quality management system are established, implemented and maintained? b) reporting to top management on the performance of the quality management system and any need for improvement? c) ensuring the promotion of awareness of customer requirements throughout the organization? and *d) the organizational freedom to resolve matters pertaining to quality?*	M		✓		✓
5.5.3. Internal communication					
09 Has Top management ensured that appropriate communication processes are established within the organization and that communication takes place regarding the effectiveness of the quality management system.					✓
5.6. Management review					
5.6.1. General					
10 Has Top management reviewed the organization's quality management system, at planned intervals, to ensure its continuing suitability, adequacy and effectiveness?	2)	S			
11 Does this review include assessing opportunities for improvement and the need for changes to the quality management system, including the quality policy and quality objectives?		S			
12 Are records from management reviews maintained (see 4.2.4)?		S			

Observation

MPG 1280.1 Rev C

1) Identify and records method of communication within the organization
2) Records management review frequency and attendees

Objective evidence assessed / Observations / Comments

Mgmt Rev. dated 5/20/03, 10/11/02

Action items, Cont. impr. / Cust Sat.

Proc. perf. Metrics

Prod. Conformity

I, A.

CA / Pr. Act

Objectives –

S : Satisfactory - CAR : Corrective action required – MA : Major corrective action – mi : Minor corrective action
N /A : Not applicable - N/E: Not evaluated - P : Product - M : Management

QUALITY SYSTEM QUESTIONNAIRE					
ASSESSMENT QUESTIONS	KEY Requirements	S	CAR Number Ma or mi	N/A	N/E

5 Management responsibility (Continued)

5.6.2. Review input

13 Does the input to management review include information on: a) results of audits? b) customer feedback? c) process performance and product conformity? d) status of preventive and corrective actions? e) follow-up actions from previous management reviews? f) changes that could affect the quality management system? and g) recommendations for improvement?	1) M	S			

5.6.3. Review output

14 Does the output from the management review include any decisions and actions related to : a) improvement of the effectiveness of the quality management system and its processes? b) improvement of product related to customer requirements? and c) resource needs?	1) M	S			

1) Verify the availability of input / output data such as : statistical data; graphics; summary tables; reports; etc.

Objective evidence assessed / Observations / Comments

See previous page

S : Satisfactory - CAR : Corrective action required – MA : Major corrective action – mi : Minor corrective action
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QUALITY SYSTEM QUESTIONNAIRE					
ASSESSMENT QUESTIONS	KEY Requirements	S	CAR Number Ma or mi	N/A	N/E
6 Resource management					
6.1. Provision of resources					
01 Has the organization determined and provided the resources needed : a) to implement and maintain the quality management system and continually improve its effectiveness? and b) to enhance customer satisfaction by meeting customer requirements?					✓
6.2. Human resources					
6.2.1. General					
02 Are personnel performing work affecting product quality competent on the basis of appropriate education, training, skills and experience.	1)				✓
6.2.2. Competence, awareness and training					
03 Does the organization : a) determine the necessary competence for personnel performing work affecting product quality? b) provide training or take other actions to satisfy these needs? c) evaluate the effectiveness of the actions taken? d) ensure that its personnel are aware of the relevance and importance of their activities and how they contribute to the achievement of the quality objectives? e) maintain appropriate records of education, training, skills and experience (see 4.2.4)?	2) P 3)				✓
6.3. Infrastructure					
04 Does the organization determine, provide and maintain the infrastructure needed to achieve conformity to product requirements. Infrastructure includes, as applicable: a) buildings, workspace and associated utilities? b) process equipment (both hardware and software)? and c) supporting services (such as transport or communication)?					✓
6.4. Work environment					
05 Does the organization determine and manage the work environment needed to achieve conformity to product requirements?	P	S			

Note: Factors that may affect the conformity of the product include temperature, humidity, lighting, cleanliness, protection from electrostatic discharge, etc.

1) Training Records and Plan (status of the current year and of the previous year)
2) Give examples of methods used to determine competence (e.g.: competence matrix, multiskill....)
3) Training certificates for the certified personnel and training records (internal and external training courses)

Objective evidence assessed / Observations / Comments

Observed test area environment - well maintained + appropriate for use,

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QUALITY SYSTEM QUESTIONNAIRE					
ASSESSMENT QUESTIONS	KEY Requirements	S	CAR Number Ma or mi	N/A	N/E

7 Product realization

7.1. Planning of product realization

01	Does the organization plan and develop the processes needed for product realization? (see 4.1)		S
02	Is planning of product realization consistent with the requirements of the other processes of the quality management system (see 4.1)?		S
03	In planning product realization, does the organization determine the following, as appropriate:	P	S
	a) quality objectives and requirements for the product?		
	b) the need to establish processes, documents, and provide resources specific to the product?		
	c) required verification, validation, monitoring, inspection and test activities specific to the product and the criteria for product acceptance?		
	d) records needed to provide evidence that the realization processes and resulting product meet requirements (see 4.2.4)?		
	e) *the identification of resources to support operation and maintenance of the product?*		
04	Is the output of this planning in a form suitable for the organization's method of operations?		S

Project/ Program Plans

checklists

7.2. Customer-related processes

7.2.1. Determination of requirements related to the product

04	Does the organization determine :	M	S
	a) requirements specified by the customer, including the requirements for delivery and post-delivery activities?		
	b) requirements not stated by the customer but necessary for specified or intended use, where known?		
	c) statutory and regulatory requirements related to the product? and		
	d) any additional requirements determined by the organization ?		

Objective evidence assessed / Observations / Comments

Rev. MSFC Plan - 3003. 4/19/02 in process of Rev to A
PRCB e-mail 5/23/03 - re: changed flight schedules. w/i NASA
Review for flight selection by toxicologists + scientists. for appropriateness - TYPE I -
Project Agreement for Biological Carriers (BIC) PA02-1 - yearly renewal,
Rev. PVP 03 dtd 5/1-2/03
CWC - Center Wide Collaborative - identifies resources + associated negotiated - work commitment. (YR)
Reviewed MSAD Monthly Rev. May '03 -
Hdware Lease Agreements w/ UAB #DPCG
Flight Manifest dtd 4/15/03
Integration + Ops Agreement - coordinates w/cust. hdw needs - Cust Provided Property.

QUALITY SYSTEM QUESTIONNAIRE					
ASSESSMENT QUESTIONS	KEY Requirements	S	CAR Number Ma or mi	N/A	N/E
7.2.2. Review of requirements related to the product					
06 Does the organization review the requirements related to the product?		S			
07 Is the review conducted prior to the organization's commitment to supply a product to the customer (e.g. submission of tenders, acceptance of contracts or orders, acceptance of changes to contracts or orders) and does it ensure that : a) product requirements are defined? b) contract or order requirements differing from those previously expressed are resolved? c) the organization has the ability to meet the defined requirements? *and* ***d) risks (e.g., new technology, short delivery time scale) have been evaluated?***	1) P	S			
08 Are records of the results of the review and actions arising from the review maintained (see 4.2.4)?	2)	S			
09 Where the customer provides no documented statement of requirement, are the customer requirements confirmed by the organization before acceptance?				✓	
10 Where product requirements are changed, does the organization ensure that relevant documents are amended and that relevant personnel are made aware of the changed requirements?	P	S			

Note: In some situations, such as internet sales, a formal review is impractical for each order. Instead the review can cover the relevant product information such as catalogues or advertising material.

7.2.3. Customer communication

11 Does the organization determine and implement effective arrangements for communicating with customers in relation to: a) product information? b) enquiries, contracts or order handling, including amendments? and c) customer feedback, including customer complaints?		S			

1) Check that all affected functions are involved in the review
2) Give examples

Objective evidence assessed / Observations / Comments

MPG 7100.1, MWI 7120.1, MPG 7120.1
Interviewed Project Manager - BIC - Reqmts reviewed with customer
Reviewed risk management plan for MSRR-1 (MSRF-PLAN-0040)
Verified multi-functional/cross-functional review + approval of requirements document (MSFC-REQMT-28711 2/11/02) as evidenced by signoffs (SSP-50200, SSP-57000)
Verified changes in requirements document reviewed and approved for implementation.

Literature, brochures and informational exchange through customer meetings throughout project/program lifecycle,
Space act agreements, interagency agreements are all methods used to doc. customer needs
Customer feedback handled by individual directorate area managers

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QUALITY SYSTEM QUESTIONNAIRE					
ASSESSMENT QUESTIONS	KEY Requirements	S	CAR Number Ma or mi	N/A	N/E

7 Product realization (continued)

7.3.1.1. Design and development

7.3.1. Design and development planning

12 Does the organization plan and control the design and development of product? — S

13 During the design and development planning, does the organization determine : — 1) M

a) the design and development stages? Project Plan for MSRR

- in respect of organization, task sequence, mandatory steps, significant stages and method of configuration control, MSFC-PLAN-2902 5/9/02 — S

b) the review, verification and validation that are appropriate to each design and development stage? and revised MSFC-PLAN-2902 4/2/03

c) the responsibilities and authorities for design and development?

14 *Where appropriate, due to complexity, does the organization give consideration to the following activities :* Structural, thermal, system, ops, science

- structuring the design effort into significant elements?

- for each element, analyzing the tasks and the necessary resources for its design and development. Does This analysis consider an identified responsible person, design content, input data, planning constraints, and performance conditions. Is the input data specific to each element reviewed to ensure consistency with requirements? — S

Verified & reviewed MSRR-1

15 Does the organization manage the interfaces between different groups involved in design and development to ensure effective communication and clear assignment of responsibility? MSRR-1 Proj Org — S

16 Is planning output updated, as appropriate, as the design and development progresses? Project Plan — S

17 *Are the different design and development tasks to be carried out defined according to specified safety or functional objectives of the product in accordance with customer and/or regulatory authority requirements?* within Project Plan revisions — 2) P — S

ESA, Boeing, UH, NASA

Science Dir, Microgravity Structures Dir

7.3.2. Design and development inputs

18 Are inputs relating to product requirements determined and are records maintained (see 4.2.4)? — 3) M

Do these inputs include :

a) functional and performance requirements? MSFC-PLAN-2855 SEMA Plan Risk Plan SSP Reqmts — S

b) applicable statutory and regulatory requirements?

c) where applicable, information derived from previous similar designs? and

d) other requirements essential for design and development?

19 Are these inputs reviewed for adequacy? — S

20 Are requirements completed, unambiguous and not in conflict with each other? — S

7.3.3. Design and development outputs

21 Are the outputs of design and development provided in a form that enables verification against the design and development input and approved prior to release? — S

1) Give at least an example of a completed design & development plan, or an example of one in progress, that identifies the planning of tasks and key events.
2) Give an example
3) List all applicable input data (give examples)

Program Mgr

Objective evidence assessed / Observations / Comments

Team Lead AD23 - Structural Design / Structures WBS Manager.
Microgravity Science Research Rack - MSRR Program
↳ responsible for system integration

Completed plan reviewed MSFC-PLAN-2902 dtd 4/2/03.

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QUALITY SYSTEM QUESTIONNAIRE					
ASSESSMENT QUESTIONS	KEY Requirements	S	CAR Number Ma or mi	N/A	N/E

7 Product realization (continued)

7.3.3. Design and development outputs (continued)

22 Do the design and development outputs : a) meet the input requirements for design and development? b) provide appropriate information for purchasing, production and for service provision? c) contain or reference product acceptance criteria? d) specify the characteristics of the product that are essential for its safe and proper use? *and* *e) identify key characteristics, when applicable, in accordance with design or contract requirements?*	M	S			
23 *Is all pertinent data required to allow the product to be identified, manufactured, inspected, used and maintained defined by the organization; for example:* *a) - Drawings, part lists, specifications?* *b) - a listing of those drawings, part lists, and specifications necessary to define the configuration and the design features of the product?* *- information on material, processes, type of manufacturing and assembly of the product necessary to ensure the conformity of the product?*	M	S			

7.3.4. Design and development review

24 At suitable stages, are systematic reviews of design and development performed in accordance with planned arrangements (see 7.3.1) to: a) evaluate the ability of the results of design and development to meet requirements? b) identify any problems and propose necessary actions? *and* *c) authorize progression to the next stage?*	1)M	S			
25 Do participants in such reviews include representatives of functions concerned with the design and development stage(s) being reviewed?		S			
26 Are records of the results of the reviews and any necessary actions maintained (see 4.2.4)?		S			

7.3.5. Design and development verification

27 Is verification performed in accordance with planned arrangements (see 7.3.1) to ensure that the design and development outputs have met the design and development input requirements?		S			
28 Are records of the results of the reviews and any necessary actions maintained (see 4.2.4)?		S			

Note: Design and/or development verification may include activities such as:
- **performing alternative calculations,**
- **comparing the new design with a similar proven design, if available**
- **undertaking tests and demonstrations, and**
- **reviewing the design stage documents before release.**

1) Give evidence of reviews

Objective evidence assessed / Observations / Comments

INPUT REQMTS - SSP-50200 - Sp St. Prog. Impl. Plan
SSP 50431 - Sp St. Prog Reqmts for Payloads
SSP - 57000 - Press. Payloads Interface Reqmts

Revised baseline master schedule - begin 2nd Qtr CY 1998 thru 3rd Qtr CY 2004
Project Schedule through CY 2006 dtd 4/2/03

CM Plan - MSFC Plan-2859

Joint Implementation Plan MSFC-PLAN-2956 (NASA-ESA)

Integrated Rack Verification Report MSFC-RPT-1111-(2/11/02)
its verification methods & phases

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Critical Design Review dtd 4/18/02
Qtly Prod. Development Team Review dtd 3/20/03

QUALITY SYSTEM QUESTIONNAIRE					
ASSESSMENT QUESTIONS	KEY Requirements	S	CAR Number Ma or mi	N/A	N/E

7 Product realization (continued)

7.3.6. Design and development validation

29 Is design and development validation performed in accordance with planned arrangements (see 7.3.1) to ensure that the resulting product is capable of meeting the requirements for the specified application or intended use, where known?	P	S			
30 Wherever practicable, is validation completed prior to the delivery or implementation of the product?		S			
31 Are records of the results of validation and any necessary actions maintained (see 4.2.4)		S			

Note:
- Design and/or development validation follows successful design and/or development verification.
- Validation is normally performed under operating conditions.
- Validation is normally performed on the final product, but may be necessary in the earlier stages prior to product completion
- Multiple validations may be performed if there are different intended uses.

7.3.6.1. Documentation of design and/or development verification and validation

32 At the completion of design and/or development, does the organization ensure that reports, calculations, test results, etc., demonstrate that the product definition meets the specification requirements for all identified operational conditions? Final doc review	M	S			

7.3.6.2. Design and/or development verification and validation testing

33 Where tests are necessary for verification and validation, are these tests planned, controlled, reviewed, and documented to ensure and prove the following : Test Plans verified per	1) P	S			
a) test plans or specifications identify the product being tested and the resources being used, define test objectives and conditions, parameters to be recorded, and relevant acceptance criteria?					
b) test procedures describe the method of operation, the performance of the test, and the recording of the results?					
c) the correct configuration standard of the product is submitted for the test?					
d) the requirements of the test plan and the test procedures are observed?					
e) the acceptance criteria are met?					

1) Give an example of a qualification report

Objective evidence assessed / Observations / Comments

RISK Management Plan MSRF-PLAN-0040
Verification/Validation per reqmts of SSP 57000
Qtrly Status Reviews (3/20/03)
Weekly Prod Dev Team Mtgs
Critical Design Review (4/18/02)
Test Implementation Plan Vac Seal Test MSRRI-PLAN-0044 (9/15/00)
Rev. Qual/Accept Environmental Test SSP 41172 (12/02/00)

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QUALITY SYSTEM QUESTIONNAIRE					
ASSESSMENT QUESTIONS	KEY Requirements	S	CAR Number Ma or mi	N/A	N/E

7 Product realization (continued)

7.3.7. Control of design and development changes

34	Are design and development changes identified and records maintained?					
35	Are the changes reviewed, verified and validated, as appropriate, and approved before implementation?	1) P				
36	Does the review of design and development changes include evaluation of the effect of the changes on constituent parts and product already delivered?	R				
37	***Does the organization's change control process provide for customer and/or regulatory authority approval of changes, when required by contract or regulatory requirement?***					
38	Are records of the results of the review of changes and any necessary actions maintained (see 4.2.4)?					

7.4 Purchasing

7.4.1. Purchasing process

39	Does the organization ensure that purchased product conforms to specified purchase requirements?		S			
40	Is the type and extent of control applied to the Supplier and the purchased product dependent upon the effect of the purchased product on subsequent product realization or the final product?		S			
41	Does the organization evaluate and select Suppliers based on their ability to supply product in accordance with the organization's requirements?		S			
42	Are criteria for selection, evaluation and re-evaluation established? Award fee		S			
43	Are records of the results of evaluations and any necessary actions arising from the evaluation maintained (see 4.2.4)?		S			
44	***Does the organization :***	M				
	a) maintain a register of approved Suppliers that includes the scope of the approval? ✓	2)	S			
	b) Periodically review Suppliers performance and use the records of these reviews as a basis for establishing the level of controls to be implemented? ✓		S			
	c) define the necessary actions to take when dealing with Suppliers that do not meet requirements? ✓	3)				
	d) ensure where required that both the organization and all Suppliers use customer-approved special process sources?		S			
	e) ensure that the function having responsibility for approving Supplier quality systems has the authority to disapprove the use of sources? ✓		S			

1) Give an example
2) Current list of approved Suppliers
3) Suppliers performance / measurement system (e.g.: supplier rating, etc..)

Objective evidence assessed / Observations / Comments

Contracting Officer

Gary Bugbee - Space Shuttle
- Lockheed Martin - External Tank
NAS8-00016
Award Fee - semi-annual - Oct 02 - 3/03
project office
AVL - 3 tiers - scope indicated

MWI 5330.1
E

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QUALITY SYSTEM QUESTIONNAIRE					
ASSESSMENT QUESTIONS	KEY Requirements	S	CAR Number Ma or mi	N/A	N/E

7 Product realization (continued)

7.4. Purchasing (continued)

7.4.2. Purchasing information

45 Does purchasing information describe the product to be purchased, including where appropriate :	1) P	
a) requirements for approval of product, procedures, processes and equipment?		✓
b) requirements for qualification of personnel?		✓
c) quality management system requirements?		
d) the name or other positive identification, and applicable issues of specifications, drawings, process requirements, inspection instructions and other relevant technical data? ✓		
e) requirements for design, test, examination, inspection and related instructions for acceptance by the Supplier? ✓		S
f) requirements for test specimens (e.g., production method, number, storage conditions) for design approval, inspection, investigation or auditing? ✓		S
g) requirements relative to : - *supplier notification to Supplier of nonconforming product? and* organisation - *arrangements for Supplier approval of supplier nonconforming material?*		S
h) requirements for the supplier to notify the Supplier of changes in product and/or process definition and, where required, obtain organization approval?		S
i) right of access by the organization, their customer, and regulatory authorities to all facilities involved in the order and to all applicable records? and FAR (CFR 48)		
j) requirements for the supplier to flow down to sub-tier suppliers the applicable requirements in the purchasing documents, including key characteristics where required?		S
46 Does the organization ensure the adequacy of specified purchase requirements prior to their communication to the supplier?		S

flow down MRB →

1) Examine purchase orders that apply to several types of procurement.

Objective evidence assessed / Observations / Comments

NAS 8-00014

Config Mgmt.
Data Req't's
Test Req'ts
Acceptance Req'ts
S.O.W.

Order # H-352600 - Starfire Systems - Malta, NY ✓ Approved

Contract # 8-1-1-54-02615 - MRB authority flow down Scope

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QUALITY SYSTEM QUESTIONNAIRE					
ASSESSMENT QUESTIONS	KEY Requirements	S	CAR Number Ma or mi	N/A	N/E

7 Product realization (continued)

7.3.7. Control of design and development changes

34	Are design and development changes identified and records maintained? ECN's		S		
35	Are the changes reviewed, verified and validated, as appropriate, and approved before implementation? through Cont Control Board.	1) P	S		
36	Does the review of design and development changes include evaluation of the effect of the changes on constituent parts and product already delivered?	P	S		
37	*Does the organization's change control process provide for customer and/or regulatory authority approval of changes, when required by contract or regulatory requirement?*		S		
38	Are records of the results of the review of changes and any necessary actions maintained (see 4.2.4)? ON-LINE MGMT SYSTEM (OPMS) and CPTAS (Change Processing Tracking + Accounting System)		S		

7.4 Purchasing

7.4.1. Purchasing process

39	Does the organization ensure that purchased product conforms to specified purchase requirements?				
40	Is the type and extent of control applied to the Supplier and the purchased product dependent upon the effect of the purchased product on subsequent product realization or the final product?				
41	Does the organization evaluate and select Suppliers based on their ability to supply product in accordance with the organization's requirements?				
42	Are criteria for selection, evaluation and re-evaluation established?				
43	Are records of the results of evaluations and any necessary actions arising from the evaluation maintained (see 4.2.4)?				
44	*Does the organization :*	M			
	a) maintain a register of approved Suppliers that includes the scope of the approval?	2)			
	b) Periodically review Suppliers performance and use the records of these reviews as a basis for establishing the level of controls to be implemented?				
	c) define the necessary actions to take when dealing with Suppliers that do not meet requirements?	3)			
	d) ensure where required that both the organization and all Suppliers use customer-approved special process sources?				
	e) ensure that the function having responsibility for approving Supplier quality systems has the authority to disapprove the use of sources?				

1) Give an example
2) Current list of approved Suppliers
3) Suppliers performance / measurement system (e.g.: supplier rating, etc..)

Objective evidence assessed / Observations / Comments

Revised changes to SSP 57000 Rev E & F pending (4/13/02)
IRN 0001 - 7 Incorps. SSCD004176 + 063970.
Revised changes to MSFC-PLAN-2902 (5/9/02 + 4/20/03)

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QUALITY SYSTEM QUESTIONNAIRE					
ASSESSMENT QUESTIONS	KEY Requirements	S	CAR Number Ma or mi	N/A	N/E

7 Product realization (continued)

7.4. Purchasing (continued)

7.4.2. Purchasing information

45	Does purchasing information describe the product to be purchased, including where appropriate :	1) P				
	a) requirements for approval of product, procedures, processes and equipment?					
	b) requirements for qualification of personnel?					
	c) quality management system requirements?					
	d) the name or other positive identification, and applicable issues of specifications, drawings, process requirements, inspection instructions and other relevant technical data?					
	e) requirements for design, test, examination, inspection and related instructions for acceptance by the Supplier?					
	f) requirements for test specimens (e.g., production method, number, storage conditions) for design approval, inspection, investigation or auditing?					
	g) requirements relative to : - *supplier notification to Supplier of nonconforming product? and* - *arrangements for Supplier approval of supplier nonconforming material?* (organisation)					
	h) requirements for the supplier to notify the Supplier of changes in product and/or process definition and, where required, obtain organization approval?					
	i) right of access by the organization, their customer, and regulatory authorities to all facilities involved in the order and to all applicable records? and					
	j) requirements for the supplier to flow down to sub-tier suppliers the applicable requirements in the purchasing documents, including key characteristics where required?					
46	Does the organization ensure the adequacy of specified purchase requirements prior to their communication to the supplier?					

1) Examine purchase orders that apply to several types of procurement.

Objective evidence assessed / Observations / Comments

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QUALITY SYSTEM QUESTIONNAIRE

ASSESSMENT QUESTIONS	KEY Requirements	S	CAR Number Ma or mi	N/A	N/E
7 Product realization (continued)					
7.4. Purchasing (continued)					
7.4.3. Verification of purchased product					
47 Does the organization establish and implement the inspection or other activities necessary for ensuring that purchased product meets specified purchase requirements, they may include *obtaining objective evidence of the quality of the product from suppliers (e.g., accompanying documentation, certificate of conformity, test reports, statistical records, process control, inspection and audit at supplier's premises, review of the required documentation, inspection of products upon receipt, and, delegation of verification to the supplier, or supplier certification?*	P	S			
48 *Is purchased product held until it has been verified as conforming to specified requirements unless it is released under positive recall procedure?*		S			
49 *Where the organization utilizes test reports to verify purchased product, is the data in those reports acceptable per applicable specifications?* ✓	1)	S			
50 *Does the organization periodically validate test reports for raw material?* ✓	1)				
51 *Where the organization delegates verification activities to the supplier, are the requirements for delegation defined and a register of delegations maintained?* DCMC only	1)	S			
52 Where the organization or its customer intends to perform verification at the supplier's premises, does the organization state the intended verification arrangements and method of product release in the purchasing information?		S			
53 *Where specified in the contract, is the customer or the customer's representative afforded the right to verify at the supplier's premises and the organization's premises that subcontracted product conforms to specified requirements?*		S			
54 *It is ensured that verification by the customer is not used by the organization as evidence of effective control of quality by the supplier (it does not absolve the organization of the responsibility to provide acceptable product, nor shall it preclude subsequent rejection by the customer)?*		S			

1) Give an example

Objective evidence assessed / Observations / Comments

Bldg 4705 – Sierra Lobo Contract — MWI 5110.3 Rev –
R+D Space
Contract Admin
Outsourcing
P/O 96M21086-1 – Electroplate Circuitry
Report # 03827 — DAR submitted EPC-001
Electr. Test Cert
Test Report
First Article Report
- Test Reports validated internally for raw Material – IAR 3511 Test report Validated

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347 Stainless Eagle Alloy
MPG 8730.1 D
MPD 1280.1 Rev K
Action provided

QUALITY SYSTEM QUESTIONNAIRE					
ASSESSMENT QUESTIONS	KEY Requirements	S	CAR Number Ma or mi	N/A	N/E

7 Product realization (continued)

7.5. Production and service provision

7.5.1. Control of production and service provision

55	*Does planning consider, as applicable :* *a) - the establishment of process controls and development of control plans where key characteristics have been identified* *b) - the identification of in-process verification points when adequate verification of conformance cannot be performed at a later stage of realization* *c) - the design, manufacture, and use of tooling so that variable measurements can be taken, particularly for key characteristics, and* *d) - special processes (see 7.5.2).*					
56	Does the organization plan and carry out production and service provision under controlled conditions. Do these controlled conditions include, as applicable : a) the availability of information that describes the characteristics of the product? b) the availability of work instructions, as necessary? c) the use of suitable equipment? d) the availability and use of monitoring and measuring devices? e) the implementation of monitoring and measurement, f) the implementation of release, delivery and post-delivery activities? *g) accountability for all product during manufacture (e.g., parts quantities, split orders, nonconforming product)?* *h) evidence that all manufacturing and inspection operations have been completed as planned, or as otherwise documented and authorized?* *i) provision for the prevention, detection, and removal of foreign objects?* *j) monitoring and control of utilities and supplies such as water, compressed air, electricity and chemical products to the extent they affect product quality? and* *k) criteria for workmanship, which shall be stipulated in the clearest practical manner (e.g., written standards, representative samples or illustrations)?*	1)				
		P				
		P				

1) Give an example

Objective evidence assessed / Observations / Comments

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N/A : Not applicable - N/E: Not evaluated - P : Product - M : Management

QUALITY SYSTEM QUESTIONNAIRE					
ASSESSMENT QUESTIONS	KEY Requirements	S	CAR Number Ma or mi	N/A	N/E

7 Product realization (continued)

7.4. Purchasing (continued)

7.4.3. Verification of purchased product

47	Does the organization establish and implement the inspection or other activities necessary for ensuring that purchased product meets specified purchase requirements, they may include *obtaining objective evidence of the quality of the product from suppliers (e.g., accompanying documentation, certificate of conformity, test reports, statistical records, process control, inspection and audit at supplier's premises, review of the required documentation, inspection of products upon receipt, and, delegation of verification to the supplier, or supplier certification*?	P				
48	*Is purchased product held until it has been verified as conforming to specified requirements unless it is released under positive recall procedure?*					
49	*Where the organization utilizes test reports to verify purchased product, is the data in those reports acceptable per applicable specifications?*	1)				
50	*Does the organization periodically validate test reports for raw material?*	1)				
51	*Where the organization delegates verification activities to the supplier, are the requirements for delegation defined and a register of delegations maintained?*	1)				
52	Where the organization or its customer intends to perform verification at the supplier's premises, does the organization state the intended verification arrangements and method of product release in the purchasing information?					
53	*Where specified in the contract, is the customer or the customer's representative afforded the right to verify at the supplier's premises and the organization's premises that subcontracted product conforms to specified requirements?*					
54	*It is ensured that verification by the customer is not used by the organization as evidence of effective control of quality by the supplier (it does not absolve the organization of the responsibility to provide acceptable product, nor shall it preclude subsequent rejection by the customer)?*					

1) Give an example

Objective evidence assessed / Observations / Comments

S : Satisfactory - CAR : Corrective action required – MA : Major corrective action – mi : Minor corrective action
N/A : Not applicable - N/E: Not evaluated - P : Product - M : Management

QUALITY SYSTEM QUESTIONNAIRE ASSESSMENT QUESTIONS	KEY Requirements	S	CAR Number Ma or mi	N/A	N/E
7 Product realization (continued)					
7.5. Production and service provision					
7.5.1. Control of production and service provision					
55 *Does planning consider, as applicable :* Project Plans *a) - the establishment of process controls and development of control plans where key characteristics have been identified* *b) - the identification of in-process verification points when adequate verification of conformance cannot be performed at a later stage of realization* *c) - the design, manufacture, and use of tooling so that variable measurements can be taken, particularly for key characteristics, and* *d) - special processes (see 7.5.2).*		S			
56 Does the organization plan and carry out production and service provision under controlled conditions. Test Plans / Project Plans Do these controlled conditions include, as applicable : a) the availability of information that describes the characteristics of the product? b) the availability of work instructions, as necessary? c) the use of suitable equipment? d) the availability and use of monitoring and measuring devices? e) the implementation of monitoring and measurement, f) the implementation of release, delivery and post-delivery activities? *g) accountability for all product during manufacture (e.g., parts quantities, split orders, nonconforming product)?* *h) evidence that all manufacturing and inspection operations have been completed as planned, or as otherwise documented and authorized?* Inspector stamps operator sign offs *i) provision for the prevention, detection, and removal of foreign objects?* *j) monitoring and control of utilities and supplies such as water, compressed air, electricity and chemical products to the extent they affect product quality? and* *k) criteria for workmanship, which shall be stipulated in the clearest practical manner (e.g., written standards, representative samples or illustrations)?*	1) P P	S			

MSFC-PLAN-2902

1) Give an example

Objective evidence assessed / Observations / Comments

Test Readiness Review dtd 5/5/03 ✓
Rev. Checklists ✓
Test Project# P2360 / TestLoc TS300 - reviewed Test Plan + Test Reqmts Doc
Risk Assessment 5/12/03 TRD - 5/7/03
Verified acceptance criteria well defined with Project + Test Plans.

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QUALITY SYSTEM QUESTIONNAIRE					
ASSESSMENT QUESTIONS	KEY Requirements	S	CAR Number Ma or mi	N/A	N/E

7 Product realization (continued)

7.5.1.1. Production documentation

57 *Are Production operations carried out in accordance with approved data?*		S			
58 *Does the data contain as necessary :* a) *drawings, parts lists, process flow charts including inspection operations, production documents (e.g., manufacturing plans, traveler, router, work order, process cards); and inspection documents (see 8.2.4.1)? and* b) *a list of specific or non-specific tools and numerical control (NC) machine programs required and any specific instructions associated with their use?*	P	S			

7.5.1.2. Control of production process changes

59 *Are persons authorized to approve changes to production processes identified?*	1) M	S			
60 *Has the organization identified and obtained acceptance of changes that require customer and/or regulatory authority approval in accordance with contract or regulatory requirements?*		S			
61 *Are changes affecting processes, production equipment, tools and programs documented?* ECN's	P	S			
62 *Are procedures available to control their implementation?*		S			
63 *Are the results of changes to production processes assessed to confirm that the desired effect has been achieved without adverse effects to product quality?*	P	S			

7.5.1.3. Control of production equipment, tools and numerical control (N.C.) machine programs

64 *Are production equipment, tools and programs validated prior to use and maintained and inspected periodically according to documented procedures?* per MG 8730.5	P	S			
65 *Does validation prior to production use include verification of the first article produced to the design data/specification?*	P			✓	
66 *Are storage requirements, including periodic preservation/condition checks, established for production equipment or tooling in storage?*		S			

7.5.1.4. Control of work transferred, on a temporary basis, outside the organization's facilities

67 *When planning to temporarily transfer work to a location outside the organization's facilities, does the organization define the process to control and validate the quality of the work?*	M				✓

1) Clearly defined list

Objective evidence assessed / Observations / Comments

Cust Lockheed Martin – Shuttle failure investigations
Test Reqmts Doc – TRD – 5/7/03 ET-TR-002 Biped Thermal/VAC.
↳ negotiated w/ customer + approved by customer. ← test reqmts.
Work closely w/ S+MA to ensure all safety + maintenance issues are adequately addressed.
OI's
List of instrumentation/equip maintained by - Instrumentation Project Engineer
Approval authorities are identified in project plans
Test Group Leader – Ed.
S+MA representative

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QUALITY SYSTEM QUESTIONNAIRE					
ASSESSMENT QUESTIONS	KEY Requirements	S	CAR Number Ma or mi	N/A	N/E

7 Product realization (continued)

7.5.1.5. Control of service operations

68	*Where servicing is a specified requirement, do service operation processes provide for :*				
	a) a method of collecting and analyzing in-service data?	1)			
	b) actions to be taken where problems are identified after delivery, including investigation, reporting activities, and actions on service information consistent with contractual and/or regulatory requirements?	2)			✓
	c) the control and updating of technical documentation?				
	d) the approval, control, and use of repair schemes? and,	3)			
	e) the controls required for off-site work (e.g., organization's work undertaken at the customer's facilities)?				

7.5.2 Validation of processes for production and service provision

69	Does the organization validate any processes for production and service provision where the resulting output cannot be verified by subsequent monitoring or measurement (This includes any processes where deficiencies become apparent only after the product is in use or the service has been delivered)? **Note: These processes are frequently referred to as special processes.**	4) P			✓
70	Does validation demonstrate the ability of these processes to achieve planned results?				✓
71	Has the organization established arrangements for these processes including, as applicable :	M			
	a) defined criteria for review and approval of the processes?				
	b) qualification and approval of special processes prior to use?				
	c) approval of equipment and qualification of personnel?				✓
	d) use of specific methods and procedures?				
	e) *Control of the significant operations and parameters of special processes in accordance with documented process specifications and changes thereto?*				
	f) requirements for records (see4.2.4)? and	5)			
	g) revalidation?				

primary performed by subcontractor + controlled as such

1) Review reports issued following visits to the customer (technical support). Comment on method of collection of in service data. Examine some investigation reports
2) Evidence of implementation of corrective and preventive actions.
3) Evidence of what has been assessed(e.g.,: maintenance manual, repair manual, information to customer)
4) List of special processes.
5) Give examples

Objective evidence assessed / Observations / Comments

S+MA - oversight/validation of test facility - 2 checkout tests run
TPS - test ~~procedure~~ step sheet - 800-0715-M
Test Procedures - release 1, 2, 3 304-TCP-008-001, 002, 003
Changes can be performed on fly - Test Proj Engineer
Data review upon completion with customer.

Quality Records Custodian

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QUALITY SYSTEM QUESTIONNAIRE

ASSESSMENT QUESTIONS	KEY Requirements	S	CAR Number Ma or mi	N/A	N/E

7 Product realization (continued)

7.5.3. Identification and traceability

	KEY	S	CAR	N/A	N/E
72 Where appropriate, has the organization identified the product by suitable means throughout product realization?		S			
73 *Does the organization maintain the identification of the configuration of the product in order to identify any differences between the actual configuration and the agreed configuration?*	P	S			
74 Has the organization identified the product status with respect to monitoring and measurement requirements?		S			
75 *When acceptance authority media are used (e.g., stamps, electronic signatures, passwords), does the organization establish and document controls for the media?* MPG 8730.2	1)	S			
76 Where traceability is a requirement, does the organization control and record the unique identification of the product (see 4.2.4)?					
77 *According to the level of traceability required by contract, regulatory, or other established requirement, does the organization's system provide for:* a) *identification to be maintained throughout the product life?* b) *all the products manufactured from the same batch of raw material or from the same manufacturing batch to be traced, as well as the destination (delivery, scrap) of all products of the same batch?* c) *In any assembly, the identity of its components and those of the next higher assembly to be traced?* d) *In any given product, a sequential record of its production (manufacture, assembly, inspection) to be retrieved?* reviewed 96M25110-001 for example	2) P	S			

Note: In some industry sectors, configuration management is a means by which identification and traceability is maintained.

7.5.4. Customer property

	KEY	S	CAR	N/A	N/E
78 Does the organization exercise care with customer property while it is under the organization's control or being used by the organization? Types - Test Hardware, Fixtures,	3)	S			
79 Has the organization identified, verified, protected and safeguarded customer property provided for use or incorporation into the product? labelled/tagged - Cust ID + owner ID	P	S			
80 Does the organization define methods to identify and record customer products that are lost, damaged or otherwise made unusable and report such to the customer? indicated on tag, + in MPG 4000.1		S			

Note: Customer property can include intellectual property, *including customer furnished data used for design, production and/or inspection.*

1) Give the method used
2) Give examples of traceability level applied (up and down)
3) Identify types of product supplied by the customer.

Objective evidence assessed / Observations / Comments TRAFFIC HARBOR -

Test Stand 300
Project # P2360* unique to test program -
P2360-001, 002 - 003 Full Test
Test Article serialized by customer - one-of-a-kind test article.
Test data delivered to customer via server access /CD's

Quality Info. Systems Analyst. - Custodian Quality/Safety Stamps
verify Rebecca Schuy #59
reviewed stamp control list + sign log, Masson ✓ Rames ✓ Savage ✓

Handwritten margin notes: reviewed for procedure for installation of appropriate sign off/acceptance; through configuration management process MPG 1410.1 MPG 1410.2; MPG 4000.1 Rev D 7/26/01; STAMP CONTROL PROCESS REVIEWED

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QUALITY SYSTEM QUESTIONNAIRE					
ASSESSMENT QUESTIONS	KEY Requirements	S	CAR Number Ma or mi	N/A	N/E

7 Product realization (continued)

7.5.5. Preservation of product

81 Does the organization preserve the conformity of product during internal processing and delivery to the intended destination?		S			
82 Does the preservation include identification, handling, packaging, storage and protection?		S			
83 Does preservation also apply to the constituent parts of a product?		S			
84 Does preservation of product also include, where applicable in accordance with product specifications and/or regulations, provisions for :	P				
a) cleaning?		S			
b) prevention, detection and removal of foreign objects?		S			
c) special handling for sensitive products?		S			
d) marking and labeling including safety warnings?		S			
e) shelf life control and stock rotation?		S			
f) special handling for hazardous materials?		S			
85 Does the organization ensure that documents required by the contract/order to accompany the product are present at delivery and are protected against loss and deterioration?		S			

Objective evidence assessed / Observations / Comments — Supv Traffic Mgmt

FOD specifications unique to past test programs. Develops generic FOD - OI for test under development

Generic MWI's for handling test,

Verified unique handling reqmts ID'd in Installation Procedure for Test Article.

In-house service contractor - shipping/receiving - Cortez. req'd NASA quality system compliance.

Skyport Request - hardware HSF542003D #949 - TD71 - TES #400 - SD43 request date 1/13/03

Skyport method based on delivery reqd date + cost.

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QUALITY SYSTEM QUESTIONNAIRE					
ASSESSMENT QUESTIONS	KEY Requirements	S	CAR Number Ma or mi	N/A	N/E

7 Product realization (continued)

7.6. Control of monitoring and measuring devices

86	Does the organization determine the monitoring and measurement to be undertaken and the monitoring and measuring devices needed to provide evidence of conformity of product to determined requirements (see 7.2.1)?					
87	***Does the organization maintain a register of these monitoring and measuring devices, and define the process employed for their calibration including details of equipment type, unique identification, location, frequency of checks, check method and acceptance criteria?***					
	Note: Monitoring and measuring devices include, but are not limited to: test hardware, test software, automated test equipment (ATE) and plotters used to produce inspection data. It also includes personally owned and customer supplied equipment used to provide evidence of product conformity.					
88	Does the organization establish processes to ensure that monitoring and measurement can be carried out and are carried out in a manner that is consistent with the monitoring and measurement requirements?					
89	***Does the organization ensure that environmental conditions are suitable for the calibrations, inspections, measurements and tests being carried out?***					
90	Where necessary to ensure valid results, is measuring equipment:					
	a) calibrated or verified at specified intervals, or prior to use, against measurement standards traceable to international or national measurement standards; where no such standards exist, the basis used for calibration or verification shall be recorded?	1)				
	b) adjusted or re-adjusted as necessary?					
	c) identified to enable the calibration status to be determined?					
	d) safeguarded from adjustments that would invalidate the measurement result?					
	e) protected from damage and deterioration during handling, maintenance and storage?					
	f) ***recalled to a defined method when requiring calibration?***					
91	Does the organization assess and record the validity of the previous measuring results when the equipment is found not to conform to requirements?					
92	Does the organization take appropriate action on the equipment and any product affected?	P				
93	Are records of the results of calibration and verification maintained (see 4.2.4)?					
94	When used in the monitoring and measurement of specified requirements, is the ability of computer software to satisfy the intended application confirmed?	P				
95	Is this undertaken prior to initial use and reconfirmed as necessary?					

1) Ensure the links to the recognized international / national standard.

Objective evidence assessed / Observations / Comments

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QUALITY SYSTEM QUESTIONNAIRE ASSESSMENT QUESTIONS	KEY Requirements	S	CAR Number Ma or mi	N/A	N/E

8 Measurement, analysis and improvement

8.1. General

01	Does the organization plan and implement the monitoring, measurement, analysis and improvement processes needed :	1) M				
	a) to demonstrate conformity of the product?					
	b) to ensure conformity of the quality management system, and?					
	c) to continually improve the effectiveness of the quality management system?					
02	Does this include determination of applicable methods, including statistical techniques, and the extent of their use?					

Note: According to the nature of the product and depending on the specified requirements, statistical techniques may be used to support:
- design verification (e.g., reliability, maintainability, safety);
- process control:
  - selection and inspection of key characteristics;
  - process capability measurements;
  - statistical process control;
  - design of experiment;
- inspection – matching sampling rate to the criticality of the product and to the process capability;
- failure mode and effect analysis.

8.2. Monitoring and measurement

8.2.1. Customer satisfaction

04	As one of the measurements of the performance of the quality management system, does the organization monitor information relating to customer perception as to whether the organization has met customer requirements?	2) M	S			
05	Are the methods for obtaining and using this information determined?		S			

8.2.2. Internal audit

06	Does the organization conduct internal audits at planned intervals to determine whether the quality management system :					
	a) conforms to the planned arrangements (see 7.1), to the requirements of this International Standard and to the quality management system requirements established by the organization? and					
	b) is effectively implemented and maintained?					

1) Give examples of data
2) Give examples of how customer's satisfaction is measured, committed, and acted upon.

Objective evidence assessed / Observations / Comments

8.2.1 | CS database -

Cust. Sat. scores reported to Mgmt Rev.

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QUALITY SYSTEM QUESTIONNAIRE

ASSESSMENT QUESTIONS	KEY Requirements	S	CAR Number Ma or mi	N/A	N/E
7 Product realization (continued)					
7.6. Control of monitoring and measuring devices					
86 Does the organization determine the monitoring and measurement to be undertaken and the monitoring and measuring devices needed to provide evidence of conformity of product to determined requirements (see 7.2.1)? *from doc. test req'mt's docs*		S			
87 ***Does the organization maintain a register of these monitoring and measuring devices, and define the process employed for their calibration including details of equipment type, unique identification, location, frequency of checks, check method and acceptance criteria?***		S			
Note: Monitoring and measuring devices include, but are not limited to: test hardware, test software, automated test equipment (ATE) and plotters used to produce inspection data. It also includes personally owned and customer supplied equipment used to provide evidence of product conformity. *(handled w/ MSFC Cal Sys M647777/M647862)*					
88 Does the organization establish processes to ensure that monitoring and measurement can be carried out and are carried out in a manner that is consistent with the monitoring and measurement requirements?		S			
89 ***Does the organization ensure that environmental conditions are suitable for the calibrations, inspections, measurements and tests being carried out?*** *(Chart recorders in use) recorded for each cal.*		S			
90 Where necessary to ensure valid results, is measuring equipment:					
a) calibrated or verified at specified intervals, or prior to use, against measurement standards traceable to international or national measurement standards; where no such standards exist, the basis used for calibration or verification shall be recorded?	1)	S			
b) adjusted or re-adjusted as necessary?		S			
c) identified to enable the calibration status to be determined? *labels/stickers*		S			
d) safeguarded from adjustments that would invalidate the measurement result? *seals*		S			
e) protected from damage and deterioration during handling, maintenance and storage?		S			
f) ***recalled to a defined method when requiring calibration?*** *verified online 3/03 e-mail recalls*		S			
91 Does the organization assess and record the validity of the previous measuring results when the equipment is found not to conform to requirements?		S			
92 Does the organization take appropriate action on the equipment and any product affected?	P	S			
93 Are records of the results of calibration and verification maintained (see 4.2.4)? *ON-LINE*		S			
94 When used in the monitoring and measurement of specified requirements, is the ability of computer software to satisfy the intended application confirmed?	P	S			
95 Is this undertaken prior to initial use and reconfirmed as necessary?		S			

1) Ensure the links to the recognized international / national standard.

Objective evidence assessed / Observations / Comments *Prod. Control Clerk, Cal Lab Mgr.*

M62394 – VAC Press 1 2/25/04
M625066 – GN2 to Inject Press Stdk GT2000 10/25/04
M638321 – DLR-10 Done Press Tabor 2105 2/4/04
M624140 – MKS MASS FLO 246 10/4/03
M623256 TABOR 254 8/14/04
M1240019 VAISALA verified cal facility 3/10/03

(margin notes: Database – Online; MWG 87305 Rev G 1/29/03; Cal Fac Ops #3.7 OP dtd 2/1/98; Contact list Reviewed 6/17/03; Recall List issued for next 2 mnths verified notes; 621566 DTI proced.)

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N/A : Not applicable - N/E: Not evaluated - P : Product - M : Management

QUALITY SYSTEM QUESTIONNAIRE					
ASSESSMENT QUESTIONS.	KEY Requirements	S	CAR Number Ma or mi	N/A	N/E

8 Measurement, analysis and improvement

8.1. General

01	Does the organization plan and implement the monitoring, measurement, analysis and improvement processes needed : a) to demonstrate conformity of the product? b) to ensure conformity of the quality management system, and? c) to continually improve the effectiveness of the quality management system?	1) M				
02	Does this include determination of applicable methods, including statistical techniques, and the extent of their use?					

Note: According to the nature of the product and depending on the specified requirements, statistical techniques may be used to support:
- design verification (e.g., reliability, maintainability, safety);
- process control:
  - selection and inspection of key characteristics;
  - process capability measurements;
  - statistical process control;
  - design of experiment;
- inspection – matching sampling rate to the criticality of the product and to the process capability;
- failure mode and effect analysis.

8.2. Monitoring and measurement

8.2.1. Customer satisfaction

04	As one of the measurements of the performance of the quality management system, does the organization monitor information relating to customer perception as to whether the organization has met customer requirements?	2) M				
05	Are the methods for obtaining and using this information determined?					

8.2.2. Internal audit

06	Does the organization conduct internal audits at planned intervals to determine whether the quality management system : schedule with audit team /scope IDed a) conforms to the planned arrangements (see 7.1), to the requirements of this International Standard and to the quality management system requirements established by the organization? and b) is effectively implemented and maintained?		S S S			

1) Give examples of data
2) Give examples of how customer's satisfaction is measured, committed, and acted upon.

Objective evidence assessed / Observations / Comments Audit Mgr / Asst Audit Mgr

MPG 128026
Revised Internal Audit Schedule for 2003
Revised Audit #'s
AD 11200201 – AP, EB, Ex Rx, Summary
QS03200301 - " " " "
PS04 260301 - " " " "
Revised NCR #'s 561, 563, 555, 557 – maintained on line + tracked for closure/follow-up – internal audit database/logins.

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QUALITY SYSTEM QUESTIONNAIRE ASSESSMENT QUESTIONS	KEY Requirements	S	CAR Number Ma or mi	N/A	N/E
8 Measurement, analysis and improvement (continued)					
Internal audit (continued)					
07 Is an audit program planned, taking into consideration the status and importance of the processes and areas to be audited, as well as the results of previous audits?	1) M				
08 Is the audit criteria, scope, frequency and methods defined?					
09 Does the selection of auditors and conduct of audits ensure objectivity and impartiality of the audit process?	2)				
10 Does the organization ensure internal auditors do not audit their own work?					
11 Are the responsibilities and requirements for planning and conducting audits, and for reporting results and maintaining records (see 4.2.4) defined in a documented procedure?					
12 Do the management responsible for the areas being audited ensure that actions are taken without undue delay to eliminate detected nonconformities and their causes?	3) M				
13 Do follow-up activities include the verification of the actions taken and the reporting of verification results (see 8.5.2)?	3)				
14 Are detailed tools and techniques developed such as check sheets, process flowcharts, or any similar method to support audit of the quality management system requirements?					
15 Are the selected internal audit tools acceptable in measuring the effectiveness of the internal audit and overall organization performance?					
16 Do internal audits also meet contract and/or regulatory requirements?					
8.2.3. Monitoring and measurement of processes					
17 Does the organization apply suitable methods for monitoring and, where applicable, measurement of the quality management system processes?		S			
18 Do these methods demonstrate the ability of the processes to achieve planned results?		S			
19 When planned results are not achieved, is correction and corrective action taken, as appropriate, to ensure conformity of the product?		S			
20 In the event of process nonconformity, does the organization :	4) P				
a) take appropriate action to correct the nonconforming process?		S			
b) evaluate whether the process nonconformity has resulted in product nonconformity? and		S			
c) identify and control the nonconforming product in accordance with clause 8.3.?		S			

1) Audit plan (status of the previous year and progress of the current year).
2) List of approved auditors.
3) Evidence of a sample of audits (questionnaire, synthesis, circulation, request for corrective actions, corrective actions follow-up).
4) Give examples of non conformity (product, process,...).

Objective evidence assessed / Observations / Comments

Payload Operation + Integration Center -
Enhanced HOSC System (EHS)
HPR. HOSC Problem Report generated
IVV Metrics Summary

HPR. D9281
D9409

8.2.3

EHS Functional Status - Problem descriptions - actions taken - priority - Status -

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QUALITY SYSTEM QUESTIONNAIRE					
ASSESSMENT QUESTIONS	KEY Requirements	S	CAR Number Ma or mi	N/A	N/E

8 Measurement, analysis and improvement (continued)

8.2.4. Monitoring and measurement of product

21	Does the organization monitor and measure the characteristics of the product to verify that product requirements have been met?	P	S			
22	Is this carried out at appropriate stages of the product realization process in accordance with the planned arrangements (see 7.1)?		S			
23	***When key characteristics have been identified, are they monitored and controlled?***	P				
24	***When the organization uses sampling inspection as a means of product acceptance, is the plan statistically valid and appropriate for use?***				✓	
25	***Does the plan preclude the acceptance of lots whose samples have known nonconformities?***				✓	
26	***When required, is the plan submitted for customer approval?***				✓	
27	***Is product held until it has been inspected or otherwise verified as conforming to specified requirements, except when product is released under positive-recall procedures pending completion of all required measurement and monitoring activities?***	P	S			
28	Is evidence of conformity with the acceptance criteria maintained?		S			
29	Do records indicate the person(s) authorizing release of product (see 4.2.4)?		✓			
30	Is product release and service delivery held until all the planned arrangements (see 7.1) have been satisfactorily completed, unless otherwise approved by a relevant authority and, where applicable, by the customer?		✓			

Objective evidence assessed / Observations / Comments

FTP- MTCP-FS-GLIM-303
10/7/02

cleanliness
Test Verification - WC noted on MSFC form 460
ESDS control
DR Processing #7269 - proj. eng. (Ranking - Disposition)
use of NASA stamp - M NASA QSQ

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QUALITY SYSTEM QUESTIONNAIRE					
ASSESSMENT QUESTIONS	KEY Requirements	S	CAR Number Ma or mi	N/A	N/E

8 Measurement, analysis and improvement (continued)

Internal audit (continued)

07	Is an audit program planned, taking into consideration the status and importance of the processes and areas to be audited, as well as the results of previous audits?	1) M	S			
08	Is the audit criteria, scope, frequency and methods defined?		S			
09	Does the selection of auditors and conduct of audits ensure objectivity and impartiality of the audit process?	2)	S			
10	Does the organization ensure internal auditors do not audit their own work?		S			
11	Are the responsibilities and requirements for planning and conducting audits, and for reporting results and maintaining records (see 4.2.4) defined in a documented procedure?		S			
12	Do the management responsible for the areas being audited ensure that actions are taken without undue delay to eliminate detected nonconformities and their causes?	3) M	S			
13	Do follow-up activities include the verification of the actions taken and the reporting of verification results (see 8.5.2)?	3)	S			
14	*Are detailed tools and techniques developed such as check sheets, process flowcharts, or any similar method to support audit of the quality management system requirements?*		S			
15	*Are the selected internal audit tools acceptable in measuring the effectiveness of the internal audit and overall organization performance?*		S			
16	*Do internal audits also meet contract and/or regulatory requirements?*		S			

MPG 1780.6

8.2.3. Monitoring and measurement of processes

17	Does the organization apply suitable methods for monitoring and, where applicable, measurement of the quality management system processes?					
18	Do these methods demonstrate the ability of the processes to achieve planned results?					
19	When planned results are not achieved, is correction and corrective action taken, as appropriate, to ensure conformity of the product?					
20	*In the event of process nonconformity, does the organization :*	4) P				
a)	*take appropriate action to correct the nonconforming process?*					
b)	*evaluate whether the process nonconformity has resulted in product nonconformity? and*					
c)	*identify and control the nonconforming product in accordance with clause 8.3.?*					

1) Audit plan (status of the previous year and progress of the current year).
2) List of approved auditors.
3) Evidence of a sample of audits (questionnaire, synthesis, circulation, request for corrective actions, corrective actions follow-up).
4) Give examples of non conformity (product, process,...).

Objective evidence assessed / Observations / Comments

Auditors req'd LA course attendance + on-site experience (~400 trained / 50-80 ppl)
Reviewed list of approved auditors by internal organization
2/yr. Am presents summary to Center Director on health of center overall
Every 2 weeks w/ Mgt Rep / Assoc. Ctr. Dir presentation
Rev: SMA Objectives / Metrics 2/26/02
(see page 32 for audit packages reviewed)

S : Satisfactory - CAR : Corrective action required – MA : Major corrective action – mi : Minor corrective action
N/A : Not applicable - N/E: Not evaluated - P : Product - M : Management

QUALITY SYSTEM QUESTIONNAIRE					
ASSESSMENT QUESTIONS	KEY Requirements	S	CAR Number Ma or mi	N/A	N/E

8 Measurement, analysis and improvement (continued)

8.2.4. Monitoring and measurement of product

21	Does the organization monitor and measure the characteristics of the product to verify that product requirements have been met?	P				
22	Is this carried out at appropriate stages of the product realization process in accordance with the planned arrangements (see 7.1)?					
23	***When key characteristics have been identified, are they monitored and controlled?***	P				
24	***When the organization uses sampling inspection as a means of product acceptance, is the plan statistically valid and appropriate for use?***					
25	***Does the plan preclude the acceptance of lots whose samples have known nonconformities?***					
26	***When required, is the plan submitted for customer approval?***					
27	***Is product held until it has been inspected or otherwise verified as conforming to specified requirements, except when product is released under positive-recall procedures pending completion of all required measurement and monitoring activities?***	P				
28	Is evidence of conformity with the acceptance criteria maintained?					
29	Do records indicate the person(s) authorizing release of product (see 4.2.4)?					
30	Is product release and service delivery held until all the planned arrangements (see 7.1) have been satisfactorily completed, unless otherwise approved by a relevant authority and, where applicable, by the customer?					

Objective evidence assessed / Observations / Comments

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QUALITY SYSTEM QUESTIONNAIRE					
ASSESSMENT QUESTIONS	KEY Requirements	S	CAR Number Ma or mi	N/A	N/E

8 Measurement, analysis and improvement (continued)

8.2.4.1. Inspection documentation

31 *Are measurement requirements for product or service acceptance documented?*		S			
32 *Does this documentation ,which may be part of the production documentation, include :*	P				
a) criteria for acceptance and/or rejection?		S			
b) where in the sequence measurement and testing operations are performed?					
c) a record of the measurement results? and					
d) type of measurement instruments required and any specific instructions associated with their use?					
33 *Do test records show actual test results data when required by the specification or acceptance test plan?*		S			
34 *When required to demonstrate product qualification does the organization ensure that records provide evidence that the product meets the defined requirements?*		S			

8.2.4.2. First article inspection

35 *Does the organization's system provide a process for the inspection, verification, and documentation of a representative item from the first production run of a new part, or following any subsequent change that invalidates the previous first article inspection result?* only observed as a Contractor record	P 1)	S			

1) Give examples of first article (new product and change).

Objective evidence assessed / Observations / Comments

FTP-MTCP-FS-GLIM-303 - Verification of Test MIPs identified

See previous page

8.2.4.2. First Article Insp. - Contractor provided

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QUALITY SYSTEM QUESTIONNAIRE					
ASSESSMENT QUESTIONS	KEY Requirements	S	CAR Number Ma or mi	N/A	N/E

8 Measurement, analysis and improvement (continued)

8.3. Control of nonconforming product

Note: The term "nonconforming product" includes nonconforming product returned from a customer.

MPG 8230.3 Rev D Control of NC Prod.

36	Does the organization ensure that product which does not conform to requirements is identified and controlled to prevent its unintended use or delivery?	P	S			
37	Are the controls and related responsibilities and authorities for dealing with nonconforming product defined in a documented procedure?		S			
38	***Does the organization's documented procedure define the responsibility for review and authority for the disposition of nonconforming product and the process for approving personnel making these decisions?***		S			
39	Does the organization deal with nonconforming product in one or more of the following ways by:	P				
a)	taking action to eliminate the detected nonconformity?					
b)	authorizing its use, release or acceptance under concession by a relevant authority and, where applicable, by the customer?		S			
c)	taking action to preclude its original intended use or application?					
40	***Does the organization prevent dispositions of use-as-is or repair, unless specifically authorized by the customer, if***					
	- ***the product is produced to customer design? or***					
	- ***the nonconformity results in a departure from the contract requirements?***		S			
	(Unless otherwise restricted in the contract, is organization-designed product, which is controlled via a customer specification, dispositioned by the organization as use-as-is or repair, provided the nonconformity does not result in a departure from customer-specified requirements ?)					

Objective evidence assessed / Observations / Comments

Des. + Eng members of disp. Team -
MRB membership defined -
NASA is custom - P/N 96M12718-190 (G-LIMIT)
MTCP-FS-GLIM-383
Part 44446
DR 7269
DR 7250 - Sharp edges on screws / Supplier issue

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QUALITY SYSTEM QUESTIONNAIRE

ASSESSMENT QUESTIONS	KEY Requirements	S	CAR Number Ma or mi	N/A	N/E

MPG: 8730.3 D
AppG.

8 Measurement, analysis and improvement (continued)

8.3. Control of nonconforming product (continued)

41	***Is product dispositioned for scrap conspicuously and permanently marked, or positively controlled, until physically rendered unusable?***	P	S			
42	Are records of the nature of nonconformities and any subsequent actions taken, including concessions obtained, maintained (see 4.2.4)?		S			
43	When nonconforming product is corrected is it subject to re-verification to demonstrate conformity to the requirements?		S			
44	When nonconforming product is detected after delivery or use has started, does the organization take action appropriate to the effects, or potential effects, of the nonconformity?	P				
45	***In addition to any contract or regulatory authority reporting requirements, does the organization's system provide for timely reporting of delivered nonconforming product that may affect reliability or safety?***	P	S			
46	***Does notification include a clear description of the nonconformity, which includes as necessary, parts affected, customer and/or organization part numbers, quantity, and date(s) delivered?***		S			

Note: The term "nonconforming product" includes nonconforming product returned from a customer.

8.4 Analysis of data

47	Does the organization determine, collect and analyse appropriate data to demonstrate the suitability and effectiveness of the quality management system and to evaluate where continual improvement of the effectiveness of the quality management system can be made?	M				✓
48	Does this include data generated as a result of monitoring and measurement and from other relevant sources?					✓
49	Does the analysis of data provide information relating to : a) customer satisfaction (see 8.2.1)? b) conformity to product requirements (see 7.2.1)? c) characteristics and trends of processes and products including opportunities for preventive action? and d) organizations? (suppliers)	1)				✓

1) Give examples and check how the organization measures the effectiveness.

Objective evidence assessed / Observations / Comments

Records Data Ctr Bldg. 4705

DR 7265 DR 7188, 7191, 7227
Part Tag AAP090 /81296M2301
Scrap Matl Controls
DR 7100 - use-as-is - MRB

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QUALITY SYSTEM QUESTIONNAIRE

ASSESSMENT QUESTIONS	KEY Requirements	S	CAR Number Ma or mi	N/A	N/E

8 Measurement, analysis and improvement (continued)

8.5. Improvement

8.5.1. Continual improvement

50	Does the organization continually improve the effectiveness of the quality management system through the use of the quality policy, quality objectives, audit results, analysis of data, corrective and preventive actions and management review? noted at Mgmt Rev.		S		

8.5.2. Corrective action

51	Does the organization take action to eliminate the cause of nonconformities in order to prevent recurrence?		S		
52	Are Corrective actions appropriate to the effects of the nonconformities encountered?		S		
53	Is a documented procedure established to define requirements for :	1)			
a)	reviewing nonconformities (including customer complaints)?		S		
b)	determining the causes of nonconformities?				
c)	evaluating the need for action to ensure that nonconformities do not recur?				
d)	determining and implementing action needed?				
e)	recording of the results of the action taken (see 4.2.4)?				
f)	reviewing corrective action taken?				
g)	*flow down of the corrective action requirement to a supplier, when it is determined that the supplier is responsible for the root cause? and*	M	S		
h)	*specific actions where timely and/or effective corrective actions are not achieved?*		S		

MPG 1280.4 Rev C

none delinquent

8.5.3. Preventive action

54	Does the organization determine action to eliminate the causes of potential nonconformities in order to prevent their occurrence?	M	S		
55	Are preventive actions appropriate to the effects of the potential problems?		S		
56	Is a documented procedure established to define requirements for :	2)			
a)	determining potential nonconformities and their causes?		S		
b)	evaluating the need for action to prevent occurrence of nonconformities?				
c)	determining and implementing action needed?				
d)	recording of the results of the action taken (see 4.2.4)? and				
e)	reviewing preventive action taken?				

1) Give examples and check how the organization measures the effectiveness.
2) Give examples and check the effectiveness.

Objective evidence assessed / Observations / Comments

8.5.1 Success Stories noted/repeated at Mgmt Rev. 5/14/03

8.5.2 - RCAR 197, 196 - Closed CAUSE/CA

QSDD-144

MSFC-DR 7250.

8.5.3 - Risk Mgmt Plan ECLSS - FD21-001A 3/27/00

Risk 02 - Hydrogen Sensors - G044 (Red) R084 (Green)

Risk Matrix - Reported Monthly

Gidep Alerts -

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MSFC-ISS Qtly Report 5/20/03